

R E M A R K S

Upon entry of this amendment, claims 1 - 7, 10 - 13, and 15 – 19 will be in the application, with claims 1, 5, 7, 10, 13, 15, and 18 having been amended, and claims 8, 9, 14, 20, and 21 having been cancelled. Claims 1, 10, and 15 are the independent claims herein. No new matter has been added. Entry of this amendment and further examination are respectfully requested.

Claim Rejections

Claims 1 - 4 and 10 - 14 are rejected under 35 USC § 102(e) as being anticipated by U.S. Patent No. 6,853,169 (“Burstein”). Claims 5 - 9 and 15 - 21 are rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 6,218,817 (“Chang”) in combination with Burstein and U.S. Patent No. 6,865,682 B1 (“Talbot”). Reconsideration and withdrawal of the rejections are respectfully requested.

Claims 1, 10, and 15

Amended independent claim 1 describes an apparatus that comprises a substrate, a voltage regulator converter and a voltage regulator controller coupled to the voltage regulator converter. The voltage regulator converter comprises N phases where N is greater than one and each of the N phases is located in a respective one of N areas of the substrate. A first one of the N phases is to generate more heat than a second one of the N phases, and a first area of the substrate in which the first one of the N phases is located is less thermally-sensitive than a second area of the substrate in which the second one of the N phases is located.

The art of record is not seen to disclose or to suggest the above-mentioned features. In particular, the art of record is not seen to disclose or to suggest a first one of N phases to generate more heat than a second one of N phases, wherein a first area of a substrate in which the first one N phases is located is less thermally-sensitive than a second area of the substrate in which the second one of the N phases is located.

Burstein describes voltage regulator 10 that includes controller 18 and three or more slaves 16. Each slave 16 includes switching circuit 24 and output filter 28. Controller 18

controls each switching circuit 24 to supply energy to output terminal 22 via each output filter 28.

Current sensors 40 and 42 sense internal currents of each slave 16 and output signals that indicate whether the internal currents are greater than or less than various predefined trigger current values. Column 6, lines 55 to 65 of Burstein indicate that these predefined trigger values may differ for each current sensor 40 and 42, but Burnstein does not include any indication that one of slaves 16 generates more or less heat than another one of slaves 16. Moreover, nowhere does Burstein disclose or suggest that any of two slaves 16 is located in an area of a substrate that is less thermally-sensitive than another area in which another of slaves 16 is located.

Accordingly, nowhere can Burnstein be seen to disclose or to suggest a first one of N phases to generate more heat than a second one of N phases, wherein a first area of a substrate in which the first one N phases is located is less thermally-sensitive than a second area of the substrate in which the second one of the N phases is located.

Chang describes a voltage switching regulator including a built-in voltage switching module and Talbot describes a microprocessor module including integrated voltage regulators. Both Chang and Talbot have been reviewed and are not seen to remedy the aforementioned deficiencies in Burnstein.

In view of the foregoing, amended independent claim 1 and its related dependent claims are believed to be in condition for allowance.

Claims 10 and 15 relate to a method and a system, respectively, in which a first one of N voltage regulator phases is to generate more heat than a second one of N voltage regulator phases, and wherein a first area of a substrate in which the first one N voltage regulator phases is located is less thermally-sensitive than a second area of the substrate in which the second one of the N voltage regulator phases is located. In view of the foregoing, amended independent claims 10 and 15 and their related dependent claims are believed to be in condition for allowance.

C O N C L U S I O N

The outstanding Office Action presents a number of characterizations regarding the applied references, some of which are not directly addressed by this response. Applicants do not necessarily agree with the characterizations and reserve the right to further discuss those characterizations.

For at least the reasons given above, it is submitted that the entire application is in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience. Alternatively, if there remains any question regarding the present application or any of the cited references, or if the Examiner has any further suggestions for expediting allowance of the present application, the Examiner is kindly invited to contact the undersigned via telephone at (203) 972-4981.

Respectfully submitted,

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Date



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